

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	3	("7108813").PN.	USPAT; EPO; DERWENT	OR	OFF	2007/12/08 23:04
L2	4	("4623670" "5626805").PN.	USPAT; EPO; DERWENT	AND	ON	2007/12/08 23:35
L3	0	264/178.r.ccls.	USPAT; EPO; DERWENT	AND	ON	2007/12/08 23:36
L4	0	264/178.ccls.	USPAT; EPO; DERWENT	AND	ON	2007/12/08 23:36
L5	339	264/178r.ccls.	USPAT; EPO; DERWENT	AND	ON	2007/12/08 23:37
L6	0	5 and polyvinylidenefluoride	USPAT; EPO; DERWENT	AND	ON	2007/12/08 23:37
L7	1	5 and polyvinylidenefluoride	USPAT; EPO; DERWENT	AND	ON	2007/12/08 23:37
L8	5	("3933653"   "3950257"   "3988245"   "4175153"   "4247498").PN.	US-PGPUB; USPAT; USOCR	AND	ON	2007/12/09 00:08
L9	5	("3933653"   "3950257"   "3988245"   "4175153"   "4247498").PN.	US-PGPUB; USPAT; USOCR	AND	ON	2007/12/09 00:25
L10	15	("4666607").URPN.	USPAT	AND	ON	2007/12/09 00:46
L11	8	10 and pvdf	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:52
L12	0	polyvinylidenefluoride and hollow fiber and melt extrusion	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:53
L13	0	polyvinylidenefluoride and hollow fiber and melt extrusion	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:53
L14	0	polyvinylidenefluoride and hollow fiber and melt extrusion	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:54
L15	0	pvdf and hollow fiber and melt extrusion	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:55

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L16	124	pvd and hollow fiber and melt extrusion	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:55
L17	0	6 and gas and solvent	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:55
L18	71	16 and air and solvent	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:59
L19	697944	"19" and liquid	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:56
L20	930767	"18" and liquid	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:56
L21	9	210/500.23.ccls. and 18	USPAT; EPO; DERWENT	AND	ON	2007/12/09 00:59

[54] **POLYVINYLIDENE FLUORIDE TYPE  
RESIN HOLLOW FILAMENT  
MICROFILTER AND PROCESS FOR  
PRODUCING THE SAME**

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[52] U.S. Cl. .... 210/500.2

[58] Field of Search ..... 210/500.2, 653, 654,  
210/655; 264/178 F, 184, 185, 199, 200; 55/158

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[57] **ABSTRACT**

A screen type hollow filament microfilter made of a polyvinylidene fluoride type resin and having a layer structure of two kinds of layers with the support layer and the internal and external skin layers having an easily-controllable and wide average effective pore diameter of 0.05 to 1.0  $\mu$ m, characterized by having a high selectivity in permeation, a high permeability, a high porosity, an excellent mechanical strength and an excellent chemical resistance and an excellent inertness to living bodies. The microfilter, which has a number of excellent performances, can be produced by extruding a spinning solution comprising a polyvinylidene fluoride type resin, a solvent therefor and at least one kind of surfactant from an annular hollow filament spinning orifice and coagulating the extrudate by using coagulating liquids.

**4 Claims, 10 Drawing Figures**

